

Search Plan and Results

Question

What is the effect of saturated fat (SFA) intake on increased risk of cardiovascular disease or type 2 diabetes, including effects on intermediate markers such as serum lipid and lipoprotein levels? (DGAC 2010)

Date Searched

07/17/2009

Inclusion Criteria

Subjects/Population

- *Age:* Two years through adult
- *Setting:* US and International
- *Health status:* Healthy and those with elevated chronic disease risk (CHD/CVD, type 2 diabetes, metabolic syndrome and obesity).

Nutrition Related Problem/Condition

Search criteria:

- *Study design preferences:* RCT or clinical controlled studies, large non-randomized observational studies, meta-analysis and systematic reviews. Feeding period must be greater than four weeks
- *Size of study groups:* The sample size must be more than 10 subjects for each study group (for e.g., this would include 10 patients in the intervention group and 10 patients in the control or comparison group)
- *Study dropout rate:* Less than 20%; preference for smaller dropout rates
- *Year range:* 2004 to present for cardiovascular disease; 2000 to present for type 2 diabetes
- *Languages:* Limited to articles in English
- *Other:* Article must be published in peer-reviewed journal.

Exclusion Criteria

Subjects/Population

- *Age:* Infants or children less than two years
- *Setting:* Inpatients
- *Health status:* None.

Nutrition Related Problem/Condition

Search criteria:

- *Size of study groups:* Sample sizes less than 10

- *Study designs:*
 - Cross-sectional
 - Feeding periods less than four weeks
 - Studies that substituted fatty acids with carbohydrate or protein
- *Study dropout rate:* If the dropout rate in a study is 20% or greater
- *Year range:* Prior to January 2004
- *Authorship:* Studies by same author with similar in content
- *Languages:* Articles not in English
- *Other:* Animal studies; abstracts or presentations.

Search Terms: Search Vocabulary

Electronic Databases

PubMed.

Cardiovascular Disease

"Lipoproteins, LDL"[Mesh] AND "dietary fats"[mh] AND saturated AND ("clinical trial"[filter]) AND "English and humans"[Filter]

"Lipoproteins, LDL"[Mesh] AND "dietary fats"[mh] AND saturated AND ("Cohort Studies"[Mesh] OR "clinical trial"[filter]) AND "English and humans"[Filter]

"Cardiovascular Disease"[Mesh] AND "dietary fats"[mh] AND saturated AND ("clinical trial"[filter]) AND "English and humans"[Filter]

"Cardiovascular Disease"[Mesh] AND "dietary fats"[mh] AND saturated AND ("Cohort Studies"[Mesh] OR "clinical trial"[filter]) AND "English and humans"[Filter]

"Inflammation"[Mesh] AND "dietary fats"[mh] AND saturated AND ("clinical trial"[filter]) AND "English and humans"[Filter]

"Inflammation"[Mesh] AND "dietary fats"[mh] AND saturated AND ("Cohort Studies"[Mesh] OR "clinical trial"[filter]) AND "English and humans"[Filter]

Saturated Fat Dietary LDL (key words)

Saturated Fat Dietary Cardiovascular Disease (key words)

Saturated Fat Dietary Inflammation (key words)

Type 2 Diabetes

"Glucose Metabolism Disorders"[Mesh] AND "dietary fats"[mh] AND saturated AND ("clinical trial"[filter]) AND "English and humans"[Filter]

"Glucose Metabolism Disorders"[Mesh] AND "dietary fats"[mh] AND saturated AND ("Cohort Studies"[Mesh] OR "clinical trial"[filter]) AND "English and humans"[Filter]

"Insulin Resistance"[Mesh] AND "dietary fats"[mh] AND saturated AND ("clinical trial"[filter]) AND "English and humans"[Filter]

"Insulin Resistance"[Mesh] AND "dietary fats"[mh] AND saturated AND ("Cohort Studies"[Mesh] OR "clinical trial"[filter]) AND "English and humans"[Filter]

"Diabetes Mellitus, Type 2"[Mesh] AND "dietary fats"[mh] AND saturated AND ("clinical trial"[filter]) AND "English and humans"[Filter]

"Diabetes Mellitus, Type 2"[Mesh] AND "dietary fats"[mh] AND saturated AND ("Cohort Studies"[Mesh] OR "clinical trial"[filter]) AND "English and humans"[Filter]

Saturated Fat Dietary NIDDM (Key words)

Total hits from all electronic database searches: 196

Total articles identified to review from electronic databases: 132

Articles Identified Via Handsearch or Other Means

Summary of Articles Identified to Review

Number of Primary Articles Identified: 20

Number of Review Articles Identified: 4

Total Number of Articles Identified: 24

Number of Articles Reviewed but Excluded: 108

List of Articles Included for Evidence Analysis

Related to Cardiovascular Disease

Systematic Review/Meta-analysis:

Jakobsen MU, O'Reilly EJ, Heitmann BL, Pereira MA, Bälter K, Fraser GE, Goldbourt U, Hallmans G, Knekt P, Liu S, Pietinen P, Spiegelman D, Stevens J, Virtamo J, Willett WC, Ascherio A. [Major types of dietary fat and risk of coronary heart disease: A pooled analysis of 11 cohort studies](#). Am J Clin Nutr. 2009 May; 89(5): 1,425-1,432. Epub 2009 Feb 11. PMID: 19211817.

Primary Articles:

Azadbakht L, Mirmiran P, Hedayati M, Esmaillzadeh A, Shiva N, Azizi F. [Particle size of LDL is affected by the National Cholesterol Education Program \(NCEP\) step II diet in dyslipidaemic adolescents](#). *Br J Nutr.* 2007 Jul; 98(1): 134-139. Epub 2007 Apr 20. PMID: 17445337.

Berglund L, Lefevre M, Ginsberg HN, Kris-Etherton PM, Elmer PJ, Stewart PW, Ershow A, Pearson TA, Dennis BH, Roheim PS, Ramakrishnan R, Reed R, Stewart K, Phillips KM; DELTA Investigators. [Comparison of monounsaturated fat with carbohydrates as a replacement for saturated fat in subjects with a high metabolic risk profile: Studies in the fasting and postprandial states](#). *Am J Clin Nutr.* 2007 Dec; 86(6): 1, 611-1, 620. PMID: 18065577.

Buonacorso V, Nakandakare ER, Nunes VS, Passarelli M, Quintão EC, Lottenberg AM. [Macrophage cholesterol efflux elicited by human total plasma and by HDL subfractions is not affected by different types of dietary fatty acids](#). *Am J Clin Nutr.* 2007 Nov; 86(5): 1, 270-1, 277. PMID: 17991635.

Chen SC, Judd JT, Kramer M, Meijer GW, Clevidence BA, Baer DJ. [Phytosterol intake and dietary fat reduction are independent and additive in their ability to reduce plasma LDL cholesterol](#). *Lipids.* 2009 Mar; 44(3): 273-281. Epub 2009 Jan 15. PMID: 19145455.

Chung BH, Cho BH, Liang P, Doran S, Osterlund L, Oster RA, Darnell B, Franklin F. [Contribution of postprandial lipemia to the dietary fat-mediated changes in endogenous lipoprotein-cholesterol concentrations in humans](#). *Am J Clin Nutr.* 2004 Nov; 80(5): 1, 145-1, 158. PMID: 15531660.

Dabadie H, Peuchant E, Bernard M, LeRuyet P, Mendy F. [Moderate intake of myristic acid in sn-2 position has beneficial lipidic effects and enhances DHA of cholesteryl esters in an interventional study](#). *J Nutr Biochem.* 2005 Jun; 16(6): 375-382. PMID: 15936650.

Furtado JD, Campos H, Appel LJ, Miller ER, Laranjo N, Carey VJ, Sacks FM. [Effect of protein, unsaturated fat, and carbohydrate intakes on plasma apolipoprotein B and VLDL and LDL containing apolipoprotein C-III: Results from the OmniHeart Trial](#). *Am J Clin Nutr.* 2008 Jun; 87(6): 1, 623-1, 630. PMID: 18541549.

Kalova Lesna I, Suchanek P, Kovar J, Stavek P, Poledne R. [Replacement of dietary saturated FAs by PUFAs in diet and reverse cholesterol transport](#). *J Lipid Res.* 2008 Nov; 49(11): 2, 414-2, 418. Epub 2008 Jul 9. PMID: 18614815.

Lefevre M, Champagne CM, Tulley RT, Rood JC, Most MM. [Individual variability in cardiovascular disease risk factor responses to low-fat and low-saturated-fat diets in men: Body mass index, adiposity, and insulin resistance predict changes in LDL cholesterol](#). *Am J Clin Nutr.* 2005 Nov; 82(5): 957-963; quiz, 1, 145-1, 146. PMID: 16280425.

Lichtenstein AH, Matthan NR, Jalbert SM, Resteghini NA, Schaefer EJ, Ausman LM. [Novel soybean oils with different fatty acid profiles alter cardiovascular disease risk factors in moderately hyperlipidemic subjects](#). *Am J Clin Nutr.* 2006 Sep; 84(3): 497-504. PMID: 16960162.

Related to Type 2 Diabetes

Reviews:

Galgani JE, Uauy RD, Aguirre CA, Díaz EO. Effect of the dietary fat quality on insulin sensitivity. *Br J Nutr.* 2008 Sep; 100(3): 471-479. Epub 2008 Apr 8. Review. PMID: 18394213.

Hu FB, van Dam RM, Liu S. [Diet and risk of Type II diabetes: The role of types of fat and carbohydrate](#). *Diabetologia.* 2001 Jul; 44(7): 805-817. Review. PMID: 11508264.

Primary Articles:

Bourque C, St-Onge MP, Papamandjaris AA, Cohn JS, Jones PJ. [Consumption of an oil composed of medium chain triacylglycerols, phytosterols, and N-3 fatty acids improves cardiovascular risk profile in overweight women](#). *Metabolism.* 2003 Jun; 52(6): 771-777. PMID: 12800105.

Han JR, Deng B, Sun J, Chen CG, Corkey BE, Kirkland JL, Ma J, Guo W. [Effects of dietary medium-chain triglyceride on weight loss and insulin sensitivity in a group of moderately overweight free-living type 2 diabetic Chinese subjects](#). *Metabolism.* 2007 Jul; 56(7): 985-991. PMID: 17570262.

Lindström J, Ilanne-Parikka P, Peltonen M, Aunola S, Eriksson JG, Hemiö K, Hääläinen H, Härkönen P, Keinänen-Kiukaanniemi S, Laakso M, Louheranta A, Mannelin M, Paturi M, Sundvall J, Valle TT, Uusitupa M,

Tuomilehto J; Finnish Diabetes Prevention Study Group. [Sustained reduction in the incidence of type 2 diabetes by lifestyle intervention: follow-up of the Finnish Diabetes Prevention Study](#). *Lancet*. 2006 Nov 11; 368(9, 548): 1, 673-1, 679. PMID: 17098085.

Lindström J, Peltonen M, Eriksson JG, Louheranta A, Fogelholm M, Uusitupa M, Tuomilehto J. [High-fibre, low-fat diet predicts long-term weight loss and decreased type 2 diabetes risk: The Finnish Diabetes Prevention Study](#). *Diabetologia*. 2006 May; 49(5): 912-920. Epub 2006 Mar 16. PMID: 16541277.

López S, Bermúdez B, Pacheco YM, Villar J, Abia R, Muriana FJ. [Distinctive postprandial modulation of beta cell function and insulin sensitivity by dietary fats: Monounsaturated compared with saturated fatty acids](#). *Am J Clin Nutr*. 2008 Sep; 88(3): 638-644. PMID: 18779278.

Paniagua JA, de la Sacristana AG, Sánchez E, Romero I, Vidal-Puig A, Berral FJ, Escribano A, Moyano MJ, Peréz-Martínez P, López-Miranda J, Pérez-Jiménez F. [A MUFA-rich diet improves postprandial glucose, lipid and GLP-1 responses in insulin-resistant subjects](#). *J Am Coll Nutr*. 2007 Oct; 26(5): 434-444. PMID: 17914131.

Schwab US, Niskanen LK, Maliranta HM, Savolainen MJ, Kesäniemi YA, Uusitupa MI. [Lauric and palmitic acid-enriched diets have minimal impact on serum lipid and lipoprotein concentrations and glucose metabolism in healthy young women](#). *J Nutr*. 1995 Mar; 125: 466-473. PMID: 7876922.

Shah M, Adams-Huet B, Brinkley L, Grundy SM, Garg A. [Lipid, glycemic, and insulin responses to meals rich in saturated, cis-monounsaturated, and polyunsaturated \(n-3 and n-6\) fatty acids in subjects with type 2 diabetes](#). *Diabetes Care*. 2007 Dec; 30(12): 2, 993-2, 998. Epub 2007 Sep 5. PMID: 17804680.

St-Onge MP, Bourque C, Jones PJ, Ross R, Parsons WE. [Medium- vs. long-chain triglycerides for 27 days increases fat oxidation and energy expenditure without resulting in changes in body composition in overweight women](#). *Int J Obes Relat Metab Disord*. 2003 Jan; 27(1): 95-102. PMID: 12532160.

Vessby B, Unsütupa M, Hermansen K, Riccardi G, Rivellese AA, Tapsell LC, Näslén C, Berglund L, Louheranta A, Rasmussen BM, Calvert GD, Maffetone A, Pedersen E, Gustafsson IB, Storlien LH; KANWU Study. [Substituting dietary saturated for monounsaturated fat impairs insulin sensitivity in healthy men and women: The KANWU Study](#). *Diabetologia*. 2001 Mar; 44(3): 312-319. PMID: 11317662.

List of Excluded Articles with Reason

Article (A-K)	Reason for Exclusion
Related to Cardiovascular Disease	
Aitken WA, Chisholm AW, Duncan AW, Harper MJ, Humphries SE, Mann JI, Murray Skeaff C, Sutherland WH, Wallace AJ, Williams SM. Variation in the cholesteryl ester transfer protein (CETP) gene does not influence individual plasma cholesterol response to changes in the nature of dietary fat . <i>Nutr Metab Cardiovasc Dis</i> . 2006 Jul; 16(5): 353-363. Epub 2005 Oct 19. PMID: 16829344.	Topic is CETP gene polymorphisms. More appropriate for Question 3.1 on genetic polymorphisms.
Ascherio A. Trans fatty acids and blood lipids . <i>Atheroscler Suppl</i> . 2006 May; 7(2): 25-27. Epub 2006 May 19. Review. PMID: 16713394.	More appropriate for Question 3.5 on TFAs.

<p>Baer DJ, Judd JT, Clevidence BA, Tracy RP. <u>Dietary fatty acids affect plasma markers of inflammation in healthy men fed controlled diets: A randomized crossover study.</u> <i>Am J Clin Nutr.</i> 2004 Jun; 79(6): 969-973. PMID: 15159225.</p>	<p>Better addresses the trans FA and stearic acid questions.</p>
<p>Binkoski AE, Kris-Etherton PM, Wilson TA, Mountain ML, Nicolosi RJ. <u>Balance of unsaturated fatty acids is important to a cholesterol-lowering diet: comparison of mid-oleic sunflower oil and olive oil on cardiovascular disease risk factors.</u> <i>J Am Diet Assoc.</i> 2005 Jul; 105(7): 1,080-1,086. PMID: 15983524.</p>	<p>Topic is unsaturated FAs, not SFA, and CVD risk.</p>
<p>Biong AS, Müller H, Seljeflot I, Veierød MB, Pedersen JI. <u>A comparison of the effects of cheese and butter on serum lipids, haemostatic variables and homocysteine.</u> <i>Br J Nutr.</i> 2004 Nov; 92(5): 791-797. PMID: 15533268</p>	<p>Very narrow experimental design; comparison of Jarlsburg cheese vs. butter consumption. Cheese consumption resulted in a better lipid profile than butter consumption.</p>
<p>Bray GA, Most M, Rood J, Redmann S, Smith SR. <u>Hormonal responses to a fast-food meal compared with nutritionally comparable meals of different composition.</u> <i>Ann Nutr Metab.</i> 2007;51(2):163-71. Epub 2007 May 29. PMID: 17536194</p>	<p>Comparison of organic beef-containing meal to fast-food beef-containing meal. Fast food meal was higher in SFA and trans FA and resulted in higher LDL-C than the organic beef meal.</p>
<p>Brinkworth GD, Noakes M, Buckley JD, Keogh JB, Clifton PM. <u>Long-term effects of a very-low-carbohydrate weight loss diet compared with an isocaloric low-fat diet after 12 months.</u> <i>Am J Clin Nutr.</i> 2009 Jul; 90(1): 23-32. Epub 2009 May 13. PMID: 19439458.</p>	<p>Addresses low CHO vs. low fat question.</p>
<p>Brunner EJ, Rees K, Ward K, Burke M, Thorogood M. <u>Dietary advice for reducing cardiovascular risk.</u> <i>Cochrane Database Syst Rev.</i> 2007 Oct 17; (4): CD002128. Review. PMID: 17943768.</p>	<p>Behavioral study.</p>
<p>Brunner EJ, Thorogood M, Rees K, Hewitt G. <u>Dietary advice for reducing cardiovascular risk.</u> <i>Cochrane Database Syst Rev.</i> 2005 Oct 19;(4): CD002128. Review. Update in: <u>Cochrane Database Syst Rev. 2007; (4): CD002128.</u> PMID: 16235299.</p>	<p>Behavioral study.</p>

<p>Burke LE, Dunbar-Jacob J, Orchard TJ, Sereika SM. Improving adherence to a cholesterol-lowering diet: A behavioral intervention study. <i>Patient Educ Couns.</i> 2005 Apr; 57(1): 134-142. PMID: 15797163</p>	<p>The topic is dietary adherence, not biochemical or health outcomes.</p>
<p>Burke LE, Styn MA, Steenkiste AR, Music E, Warziski M, Choo J. A randomized clinical trial testing treatment preference and two dietary options in behavioral weight management: preliminary results of the impact of diet at 6 months--PREFER study. <i>Obesity (Silver Spring)</i>. 2006 Nov; 14(11): 2, 007-2, 017. PMID: 17135618.</p>	<p>The topic of this report is dietary adherence, not biochemical outcomes.</p>
<p>Chardigny JM, Malpuech-Brugère C, Dionisi F, Bauman DE, German B, Mensink RP, Combe N, Chaumont P, Barbano DM, Enjalbert F, Bezelgues JB, Cristiani I, Moulin J, Boirie Y, Golay PA, Giuffrida F, Sébédio JL, Destaillats F. Rationale and design of the TRANSFACT project phase I: A study to assess the effect of the two different dietary sources of trans fatty acids on cardiovascular risk factors in humans. <i>Contemp Clin Trials</i>. 2006 Aug; 27(4): 364-373. PMID: 16632411.</p>	<p>More appropriate for Question 3.5 on trans FAs.</p>
<p>Chen ZY, Jiao R, Ma KY. Cholesterol-lowering nutraceuticals and functional foods. <i>J Agric Food Chem</i>. 2008 Oct 8; 56(19): 8, 761-8, 773. Epub 2008 Sep 9. Review. PMID: 18778072.</p>	<p>Does not address the effects of dietary fat, but is focused on nutraceuticals and functional foods.</p>
<p>Chisholm A, Mc Auley K, Mann J, Williams S, Skeaff M. Cholesterol lowering effects of nuts compared with a Canola oil enriched cereal of similar fat composition. <i>Nutr Metab Cardiovasc Dis</i>. 2005 Aug; 15(4): 284-292. PMID: 16054553.</p>	<p>Both diets tested were low SFA diets.</p>
<p>Cortés B, Núñez I, Cofán M, Gilabert R, Pérez-Heras A, Casals E, Deulofeu R, Ros E. Acute effects of high-fat meals enriched with walnuts or olive oil on postprandial endothelial function. <i>J Am Coll Cardiol</i>. 2006 Oct 17; 48(8): 1, 666-1, 671. PMID: 17045905.</p>	<p>Comparison of two high fat, high SFA, diets with olive oil or walnuts. The walnut-supplemented diet showed improved flow mediated dilation (FMD) of blood vessels, over the olive oil supplemented diet. (Both diets were the same - high - in SFA.)</p>

Craig WJ. Health effects of vegan diets . <i>Am J Clin Nutr.</i> 2009 May; 89(5): 1, 627S-1, 633S. Epub 2009 Mar 11. Review. PMID: 19279075.	Descriptive review.
Dale KS, McAuley KA, Taylor RW, Williams SM, Farmer VL, Hansen P, Vorgers SM, Chisholm AW, Mann JI. Determining optimal approaches for weight maintenance: A randomized controlled trial . <i>CMAJ.</i> 2009 May 12; 180(10): E39-46. PMID: 19433812.	Compared high-CHO diet to high-MUFA diet with behavioral and advice input.
De Lorgeril M. Essential polyunsaturated fatty acids, inflammation, atherosclerosis and cardiovascular diseases . <i>Subcell Biochem.</i> 2007; 42: 283-297. Review. PMID: 17612056.	More appropriate for Question 2.4 on PUFAs.
Dorgan JF, McMahon RP, Friedman LA, Van Horn L, Snetselaar LG, Kwiterovich PO Jr, Lauer RM, Lasser NL, Stevens VJ, Robson A, Cooper SF, Chandler DW, Franklin FA, Barton BA, Patterson BH, Taylor PR, Schatzkin A. Diet and sex hormones in boys: findings from the dietary intervention study in children . <i>J Clin Endocrinol Metab.</i> 2006 Oct; 91(10): 3, 992-3, 996. PMID: 16868056	Does not address the question. This study examined low fat intake effects on serum sex hormones in adolescent boys related to onset of puberty.
Fard NM, Mehrabian F, Sarraf-Zadegan N, Sajadi F. Fat-modified diets during pregnancy and lactation and serum lipids after birth . <i>Indian J Pediatr.</i> 2004 Aug; 71(8): 683-687. PMID: 15345867.	Pregnancy not in inclusion criteria.
Fassett RG, Ball MJ, Robertson IK, Geraghty DP, Coombes JS. Baseline serum lipids and renal function in chronic kidney disease patients entering the LORD trial . <i>Int J Clin Pharmacol Ther.</i> 2006 Nov; 44(11): 580-588. PMID: 17176625.	Chronic kidney disease not in inclusion criteria.
Friedman LA, Snetselaar L, Stumbo P, Van Horn L, Singh B, Barton BA. Influence of intervention on beverage choices: trends in the dietary intervention study in children (DISC) . <i>J Am Diet Assoc.</i> 2007 Apr; 107(4): 586-594. PMID: 17383264.	Nutrition education/behavioral study.
Gardner CD, Coulston A, Chatterjee L, Rigby A, Spiller G, Farquhar JW. The effect of a plant-based diet on plasma lipids in hypercholesterolemic adults: A randomized trial . <i>Ann Intern Med.</i> 2005 May 3; 142(9): 725-733. PMID: 15867404.	Authors compared two equally low-fat diets, with and without nutrient-dense plant-based foods.

<p>Garg A, Simha V. Update on dyslipidemia. <i>Clin Endocrinol Metab</i>. 2007 May; 92(5): 1, 581-1, 589. Review. PMID: 17483372.</p>	<p>This is an update on the genetic basis for dyslipidemias, more appropriate for Question 3.1 on genetic polymorphisms.</p>
<p>Gigleux I, Jenkins DJ, Kendall CW, Marchie A, Faulkner DA, Wong JM, de Souza R, Emam A, Parker TL, Trautwein EA, Lapsley KG, Connelly PW, Lamarche B. Comparison of a dietary portfolio diet of cholesterol-lowering foods and a statin on LDL particle size phenotype in hypercholesterolaemic participants. <i>Br J Nutr</i>. 2007 Dec; 98(6): 1, 229-1, 236. Epub 2007 Jul 30. PMID: 17663803.</p>	<p>Report on the effect of statins and plant sterols on benefits of a low-saturated fat diet on LDL particle size.</p>
<p>Grynberg A. Hypertension prevention: From nutrients to (fortified) foods to dietary patterns. Focus on fatty acids. <i>J Hum Hypertens</i>. 2005 Dec; 19 Suppl 3: S25-33. Review. PMID: 16302007.</p>	<p>Reviews both human and animal studies. Hypertension was not included in the initial Question 3.2.</p>
<p>Giugliano D, Ceriello A, Esposito K. The effects of diet on inflammation: Emphasis on the metabolic syndrome. <i>J Am Coll Cardiol</i>. 2006 Aug 15; 48(4): 677-685. Epub 2006 Jul 24. Review. PMID: 16904534.</p>	<p>Narrative review.</p>
<p>Hall WL. Dietary saturated and unsaturated fats as determinants of blood pressure and vascular function. <i>Nutr Res Rev</i>. 2009 Jun; 22(1): 18-38. Epub 2009 Feb 26. Review. PMID: 19243668.</p>	<p>Narrative review.</p>
<p>Hilpert KF, Kris-Etherton PM, West SG. Lipid response to a low-fat diet with or without soy is modified by C-reactive protein status in moderately hypercholesterolemic adults. <i>J Nutr</i>. 2005 May; 135(5): 1, 075-1, 079. PMID: 15867284.</p>	<p>Does not address the question. The authors report that inflammation (elevated CRP) interferes with cholesterol-lowering diet.</p>
<p>Hunter JE. Dietary trans fatty acids: review of recent human studies and food industry responses. <i>Lipids</i>. 2006 Nov; 41(11): 967-992. Review.</p>	<p>More appropriate for Question 3.5 on trans FAs.</p>
<p>Iughetti L, Predieri B, Balli F, Calandra S. Rational approach to the treatment for heterozygous familial hypercholesterolemia in childhood and adolescence: a review. <i>J Endocrinol Invest</i>. 2007 Sep; 30(8): 700-719. Review. PMID: 17923804.</p>	<p>More appropriate for Question 3.1 on genetic polymorphisms.</p>

<p>Jenkins DJ, Kendall CW, Marchie A, Faulkner DA, Wong JM, de Souza R, Emam A, Parker TL, Vidgen E, Trautwein EA, Lapsley KG, Josse RG, Leiter LA, Singer W, Connelly PW. <u>Direct comparison of a dietary portfolio of cholesterol-lowering foods with a statin in hypercholesterolemic participants.</u> <i>Am J Clin Nutr.</i> 2005 Feb; 81(2): 380-387. PMID: 15699225.</p>	<p>The control diet is a low SFA diet and comparisons are made to: 1) + levastatin or 2) + portfolio diet. Levels of SFA are the same in all diets.</p>
<p>Jenkins DJ, Kendall CW, Nguyen TH, Marchie A, Faulkner DA, Ireland C, Josse AR, Vidgen E, Trautwein EA, Lapsley KG, Holmes C, Josse RG, Leiter LA, Connelly PW, Singer W. <u>Effect of plant sterols in combination with other cholesterol-lowering foods.</u> <i>Metabolism.</i> 2008 Jan; 57(1): 130-139. PMID: 18078870.</p>	<p>Focus on plant sterols.</p>
<p>Jones PJ, Raeini-Sarjaz M, Jenkins DJ, Kendall CW, Vidgen E, Trautwein EA, Lapsley KG, Marchie A, Cunnane SC, Connelly PW. <u>Effects of a diet high in plant sterols, vegetable proteins, and viscous fibers (dietary portfolio) on circulating sterol levels and red cell fragility in hypercholesterolemic subjects.</u> <i>Lipids.</i> 2005 Feb; 40(2): 169-174. PMID: 15884765.</p>	<p>Outcome measures were serum sterols (e.g., campesterol and sitosterol) and RBC fragility.</p>
<p>Katz DL, Evans MA, Nawaz H, Njike VY, Chan W, Comerford BP, Hoxley ML. <u>Egg consumption and endothelial function: a randomized controlled crossover trial.</u> <i>Int J Cardiol.</i> 2005 Mar 10; 99(1): 65-70. PMID: 15721501.</p>	<p>More appropriate for Question 3.3 on cholesterol.</p>
<p>Khoury J, Haugen G, Tonstad S, Frøslie KF, Henriksen T. <u>Effect of a cholesterol-lowering diet during pregnancy on maternal and fetal Doppler velocimetry: The CARRDIP study.</u> <i>Am J Obstet Gynecol.</i> 2007 Jun; 196(6): 549.e1-549.37. PMID: 17547890.</p>	<p>Pregnancy not is inclusion criteria.</p>
<p>Krauss RM, Blanche PJ, Rawlings RS, Fernstrom HS, Williams PT. <u>Separate effects of reduced carbohydrate intake and weight loss on atherogenic dyslipidemia.</u> <i>Am J Clin Nutr.</i> 2006 May; 83(5): 1, 025-1, 031; quiz 1205. Erratum in: <i>Am J Clin Nutr.</i> 2006 Sep; 84(3): 668. PMID: 16685042.</p>	<p>Low CHO diet issue.</p>
<p>Related to Type 2 Diabetes</p>	

<p>Barnard ND, Katcher HI, Jenkins DJ, Cohen J, Turner-McGrievy G. Vegetarian and vegan diets in type 2 diabetes management. <i>Nutr Rev</i>. 2009 May; 67(5): 255-263. Review. PMID: 19386029.</p>	<p>Narrative review.</p>
<p>Bisschop PH, de Metz J, Ackermans MT, Endert E, Pijl H, Kuipers F, Meijer AJ, Sauerwein HP, Romijn JA. Dietary fat content alters insulin-mediated glucose metabolism in healthy men. <i>Am J Clin Nutr</i>. 2001 Mar; 73(3): 554-559. PMID: 11237931.</p>	<p>N=6 per group in random crossover design.</p>
<p>Bo S, Ciccone G, Baldi C, Benini L, Dusio F, Forastiere G, Lucia C, Nuti C, Durazzo M, Cassader M, Gentile L, Pagano G. Effectiveness of a lifestyle intervention on metabolic syndrome. A randomized controlled trial. <i>J Gen Intern Med</i>. 2007 Dec; 22(12): 1, 695-1, 703. Epub 2007 Oct 6. PMID: 17922167.</p>	<p>Behavioral.</p>
<p>Bray GA, Lovejoy JC, Smith SR, DeLany JP, Lefevre M, Hwang D, Ryan DH, York DA. The influence of different fats and fatty acids on obesity, insulin resistance and inflammation. <i>J Nutr</i>. 2002 Sep; 132(9): 2, 488-2, 491. Review. PMID: 12221198.</p>	<p>Narrative review.</p>
<p>Browning LM, Jebb SA. Nutritional influences on inflammation and type 2 diabetes risk. <i>Diabetes Technol Ther</i>. 2006 Feb; 8(1): 45-54. Review. PMID: 16472050.</p>	<p>Narrative review; covers animal and human studies.</p>
<p>Corcoran MP, Lamon-Fava S, Fielding RA. Skeletal muscle lipid deposition and insulin resistance: Effect of dietary fatty acids and exercise. <i>Am J Clin Nutr</i>. 2007 Mar; 85(3): 662-677. Review.</p>	<p>Narrative review; covers animal and human studies.</p>
<p>Corpeleijn E, Feskens EJ, Jansen EH, Mensink M, Saris WH, de Bruin TW, Blaak EE. Improvements in glucose tolerance and insulin sensitivity after lifestyle intervention are related to changes in serum fatty acid profile and desaturase activities: the SLIM study. <i>Diabetologia</i>. 2006 Oct; 49(10): 2, 392-2, 401. Epub 2006 Aug 3. PMID: 16896932.</p>	<p>Behavioral.</p>

<p>Dai J, Su YX, Bartell S, Le NA, Ling WH, Liang YQ, Gao L, Wu HY, Veledar E, Vaccarino V. <u>Beneficial effects of designed dietary fatty acid compositions on lipids in triacylglycerol-rich lipoproteins among Chinese patients with type 2 diabetes mellitus.</u> <i>Metabolism.</i> 2009 Apr; 58(4): 510-518. PMID: 19303972.</p>	<p>Lipid profile of post-prandial TG rich lipoproteins in Chinese T2D patients after high PUFA or MUFA meals. Does not address effect of dietary fat on risk of T2D.</p>
<p>Dekker MJ, Wright AJ, Mazurak VC, Graham TE, Marangoni AG, Robinson LE. <u>New oral fat tolerance tests feature tailoring of the polyunsaturated/saturated fatty acid ratio to elicit a specific postprandial response.</u> <i>Appl Physiol Nutr Metab.</i> 2007 Dec; 32(6): 1, 073-1, 081. PMID: 18059580.</p>	<p>Methods paper; subject number less than 10.</p>
<p>Ebbesson SO, Ebbesson LO, Swenson M, Kennish JM, Robbins DC. <u>A successful diabetes prevention study in Eskimos: The Alaska Siberia project.</u> <i>Int J Circumpolar Health.</i> 2005 Sep; 64(4): 409-424. PMID: 16277124.</p>	<p>Intervention was not dietary; intervention was only dietary counseling provided one time per year for three years in small villages in Alaska.</p>
<p>Eckel RH, Hanson AS, Chen AY, Berman JN, Yost TJ, Brass EP. <u>Dietary substitution of medium-chain triglycerides improves insulin-mediated glucose metabolism in NIDDM subjects.</u> <i>Diabetes.</i> 1992 May; 41(5): 641-647. PMID: 1568535.</p>	<p>Date of publication prior to 2000.</p>
<p>Grundy SM, Abate N, Chandalia M. <u>Diet composition and the metabolic syndrome: what is the optimal fat intake?</u> <i>Am J Med.</i> 2002 Dec 30; 113 Suppl 9B: 25S-29S. Review. PMID: 12566135.</p>	<p>Narrative review.</p>
<p>Haag M, Dippenaar NG. <u>Dietary fats, fatty acids and insulin resistance: Short review of a multifaceted connection.</u> <i>Med Sci Monit.</i> 2005 Dec; 11(12): RA359-RA367. Epub 2005 Nov 24. Review. PMID: 16319806.</p>	<p>Narrative review; covers in vivo and in vitro studies.</p>
<p>Harding AH, Sergeant LA, Welch A, Oakes S, Luben RN, Bingham S, Day NE, Khaw KT, Wareham NJ; EPIC-Norfolk Study. <u>Fat consumption and HbA(1c) levels: The EPIC-Norfolk study.</u> <i>Diabetes Care.</i> 2001 Nov; 24(11): 1, 911-1, 916. PMID: 11679456.</p>	<p>Cross-sectional study.</p>

Howard BV. Dietary fat as a risk factor for type 2 diabetes . <i>Ann N Y Acad Sci.</i> 2002 Jun; 967:324-328. Review. PMID: 12079859.	Narrative review.
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Article (L-R)	Reason for Exclusion
Related to Cardiovascular Disease	
Li D, Siriamornpun S, Wahlqvist ML, Mann NJ, Sinclair AJ. Lean meat and heart health . <i>Asia Pac J Clin Nutr.</i> 2005; 14(2): 113-119. Review. PMID: 15927927.	Narrative review. Reviewed 54 studies on lean red meat consumption and increased risk of CVD.
Lindi V, Schwab U, Louheranta A, Vessby B, Hermansen K, Tapsell L, Riccardi G, Rivelles AA, Laakso M, Uusitupa MI; KANWU Study Group. The G-250A polymorphism in the hepatic lipase gene promoter is associated with changes in hepatic lipase activity and LDL cholesterol: The KANWU Study . <i>Nutr Metab Cardiovasc Dis.</i> 2008 Feb; 18(2): 88-95 PMID: 17327141.	Paper on hepatic lipase (HL) gene polymorphism that affects LDL-C. Addresses Question 3.1 on genetic polymorphisms.
Manning PJ, Sutherland WH, McGrath MM, de Jong SA, Walker RJ, Williams MJ. Postprandial cytokine concentrations and meal composition in obese and lean women . <i>Obesity (Silver Spring).</i> 2008 Sep; 16(9): 2, 046-2, 052. PMID: 19186329	Postprandial.
Margioris AN. Fatty acids and postprandial inflammation . <i>Curr Opin Clin Nutr Metab Care.</i> 2009 Mar; 12(2): 129-137. Review. PMID: 19202384.	Addresses PUFA question.
Mauler B, Dubben S, Pawelzik M, Pawelzik D, Weigle DS, Kratz M. Hypercaloric diets differing in fat composition have similar effects on serum leptin and weight gain in female subjects with anorexia nervosa . <i>Nutr Res.</i> 2009 Jan; 29(1): 1-7. PMID: 19185771.	Does not address question. Focus is on weight gain after anorexia nervosa and effects on leptin.
McAuley KA, Hopkins CM, Smith KJ, McLay RT, Williams SM, Taylor RW, Mann JI. Comparison of high-fat and high-protein diets with a high-carbohydrate diet in insulin-resistant obese women . <i>Diabetologia.</i> 2005 Jan; 48(1): 8-16. PMID: 15616799.	Does not address question. Focus is on the difference between high fat (Atkins) vs. high protein (Zone diet) replacement of CHO in overweight insulin resistant women.

<p>McDonald BE. The Canadian experience: why Canada decided against an upper limit for cholesterol. <i>J Am Coll Nutr.</i> 2004 Dec; 23(6 Suppl): 616S-620S. Review. PMID: 15640515.</p>	<p>Narrative review of the literature that formed the background for the Canadian decision not to limit dietary cholesterol in their recommendations.</p>
<p>Miller ER 3rd, Erlinger TP, Sacks FM, Svetkey LP, Charleston J, Lin PH, Appel LJ. A dietary pattern that lowers oxidative stress increases antibodies to oxidized LDL: Results from a randomized controlled feeding study. <i>Atherosclerosis.</i> 2005 Nov; 183(1): 175-182. PMID: 16216596.</p>	<p>Health outcome measure was antibodies to oxidized LDL as an indicator of oxidative stress.</p>
<p>Miller M, Beach V, Sorkin JD, Mangano C, Dobmeier C, Novacic D, Rhyne J, Vogel RA. Comparative effects of three popular diets on lipids, endothelial function, and C-reactive protein during weight maintenance. <i>J Am Diet Assoc.</i> 2009 Apr; 109(4): 713-717. PMID: 19328268.</p>	<p>Does not address question. Study reports effects of three popular diets (Atkins, South Beach and Ornish) on lipid profiles, and so on, during weight maintenance.</p>
<p>Moreno JA, Pérez-Jiménez F, Marín C, Gómez P, Pérez-Martínez P, Moreno R, Bellido C, Fuentes F, López-Miranda J. Apolipoprotein E gene promoter -219G-T polymorphism increases LDL-cholesterol concentrations and susceptibility to oxidation in response to a diet rich in saturated fat. <i>Am J Clin Nutr.</i> 2004 Nov; 80(5): 1, 404-1, 409. PMID: 15531693.</p>	<p>ApoE genetic polymorphism question.</p>
<p>Nestel PJ, Chronopoulos A, Cehun M. Dairy fat in cheese raises LDL cholesterol less than that in butter in mildly hyper-cholesterolaemic subjects. <i>Eur J Clin Nutr.</i> 2005 Sep; 59(9): 1, 059-1, 063. PMID: 16015270.</p>	<p>RCT testing high SFA in cheese vs butter. Both test diets had the same amount of total and SFA.</p>
<p>Nicholls SJ, Lundman P, Harmer JA, Cutri B, Griffiths KA, Rye KA, Barter PJ, Celermajer DS. Consumption of saturated fat impairs the anti-inflammatory properties of high-density lipoproteins and endothelial function. <i>J Am Coll Cardiol.</i> 2006 Aug 15; 48(4): 715-720. PMID: 16904539.</p>	<p>Postprandial.</p>
<p>Ordovas JM, Kaput J, Corella D. Nutrition in the genomics era: cardiovascular disease risk and the Mediterranean diet. <i>Mol Nutr Food Res.</i> 2007 Oct; 51(10): 1, 293-1, 299. Review. PMID: 17879995</p>	<p>Addresses Question 3.1 on genetic polymorphisms.</p>

<p>Perez-Martinez P, Perez-Jimenez F, Ordovas JM, Bellido C, Moreno JA, Gomez P, Marin C, Fernandez de la Puebla RA, Paniagua JA, Lopez-Miranda J. The APOB -516C/T polymorphism has no effect on lipid and apolipoprotein response following changes in dietary fat intake in a healthy population. <i>Nutr Metab Cardiovasc Dis.</i> 2007 Mar; 17(3): 224-229. PMID: 17367707.</p>	<p>Addresses Question 3.1 on genetic polymorphisms.</p>
<p>Pirro M, Schillaci G, Savarese G, Gemelli F, Mannarino MR, Siepi D, Bagaglia F, Mannarino E. Attenuation of inflammation with short-term dietary intervention is associated with a reduction of arterial stiffness in subjects with hyper cholesterol-aemia. <i>Eur J Cardiovasc Prev Rehabil.</i> 2004 Dec; 11(6): 497-502. PMID: 15580061.</p>	<p>Case control study.</p>
<p>Pittaway JK, Robertson IK, Ball MJ. Chickpeas may influence fatty acid and fiber intake in an ad libitum diet, leading to small improvements in serum lipid profile and glycemic control. <i>J Am Diet Assoc.</i> 2008 Jun; 108(6): 1, 009-1, 013. PMID: 18502235.</p>	<p>Weak intervention trial with the addition of 728g chickpeas per week to an ad libitum diet. No other controls on dietary intake of subjects.</p>
<p>Raitakari OT, Rönnemaa T, Järvisalo MJ, Kaitosaari T, Volanen I, Kallio K, Lagström H, Jokinen E, Niinikoski H, Viikari JS, Simell O. Endothelial function in healthy 11-year-old children after dietary intervention with onset in infancy: The Special Turku Coronary Risk Factor Intervention Project for children (STRIP). <i>Circulation.</i> 2005 Dec 13; 112(24): 3, 786-3, 794. PMID:16330680.</p>	<p>Low-saturated fat diet introduced during infancy (seven months) and followed for first decade of life. Infancy not in inclusion criteria.</p>
<p>Riccardi G, Giacco R, Rivelles AA. Dietary fat, insulin sensitivity and the metabolic syndrome. <i>Clin Nutr.</i> 2004 Aug; 23(4): 447-456. Review. PMID: 15297079.</p>	<p>Narrative review. Health outcome is metabolic syndrome.</p>
<p>Related to Type 2 Diabetes</p>	
<p>Lithander FE, Keogh GF, Wang Y, Cooper GJ, Mulvey TB, Chan YK, McArdle BH, Poppitt SD. No evidence of an effect of alterations in dietary fatty acids on fasting adiponectin over 3 weeks. <i>Obesity (Silver Spring).</i> 2008 Mar; 16(3): 592-599. PMID: 18239552.</p>	<p>Adiponectin (or other adipokines) not included in health outcomes of question.</p>

<p>Louheranta AM, Turpeinen AK, Schwab US, Vidgren HM, Parviainen MT, Uusitupa MI. A high-stearic acid diet does not impair glucose tolerance and insulin sensitivity in healthy women. <i>Metabolism</i>. 1998 May; 47(5): 529-534. PMID: 9591742,</p>	<p>Date of publication prior to 2000.</p>
<p>Lovejoy JC, Smith SR, Champagne CM, Most MM, Lefevre M, DeLany JP, Denkins YM, Rood JC, Veldhuis J, Bray GA. Effects of diets enriched in saturated (palmitic), monounsaturated (oleic), or trans (elaidic) fatty acids on insulin sensitivity and substrate oxidation in healthy adults. <i>Diabetes Care</i>. 2002 Aug; 25(8): 1, 283-1, 288. PMID: 12145222.</p>	<p>Covered in Galgani review.</p>
<p>Lovejoy JC. The influence of dietary fat on insulin resistance. <i>Curr Diab Rep</i>. 2002 Oct; 2(5): 435-440. Review. PMID: 12643169.</p>	<p>Narrative review.</p>
<p>Manco M, Calvani M, Mingrone G. Effects of dietary fatty acids on insulin sensitivity and secretion. <i>Diabetes Obes Metab</i>. 2004 Nov; 6(6): 402-413. Review. PMID: 15479216.</p>	<p>Narrative review; covers animal and human studies.</p>
<p>McAuley K, Mann J. Thematic review series: Patient-oriented research. Nutritional determinants of insulin resistance. <i>J Lipid Res</i>. 2006 Aug; 47(8): 1, 668-1, 676. Review. PMID: 16720893.</p>	<p>Narrative review; covers animal and human studies.</p>
<p>Risérus U. Fatty acids and insulin sensitivity. <i>Curr Opin Clin Nutr Metab Care</i>. 2008 Mar; 11(2): 100-105. Review. PMID: 18301083.</p>	<p>Narrative review.</p>
<p>Rivellese AA, Giacco R, Annuzzi G, De Natale C, Patti L, Di Marino L, Minerva V, Costabile G, Santangelo C, Masella R, Riccardi G. Effects of monounsaturated vs. saturated fat on postprandial lipemia and adipose tissue lipases in type 2 diabetes. <i>Clin Nutr</i>. 2008 Feb; 27(1): 133-141. PMID: 17765364.</p>	<p>Study done in diabetics and health outcomes are related to lipid profile and CVD parameters, not T2D risk.</p>
<p>Rivellese AA, Lilli S. Quality of dietary fatty acids, insulin sensitivity and type 2 diabetes. <i>Biomed Pharmacother</i>. 2003 Mar; 57(2): 84-87. Review. PMID: 12842493.</p>	<p>Narrative review.</p>
<p>Robertson MD, Jackson KG, Fielding BA, Williams CM, Frayn KN. Acute effects of meal fatty acid composition on insulin sensitivity in healthy post-menopausal women. <i>Br J Nutr</i>. 2002 Dec; 88(6): 635-640. PMID: 12493085.</p>	<p>Postprandial; N=10.</p>

Article (S-Z)	Reason for Exclusion
Related to Cardiovascular Disease	
Seidel C, Deufel T, Jahreis G. Effects of fat-modified dairy products on blood lipids in humans in comparison with other fats. <i>Ann Nutr Metab.</i> 2005 Jan-Feb;49(1):42-8. PMID: 15761214	Milk fat was modified by feeding cows rapeseed oil; this decreased SFA and increased PUFAs. More of a functional food report.
Sheridan MJ, Cooper JN, Erario M, Cheifetz CE. Pistachio nut consumption and serum lipid levels. <i>J Am Coll Nutr.</i> 2007 Apr;26(2):141-8. PMID: 17536125	Subjects per intervention group less than 10.
Skeaff CM, Thoma C, Mann J, Chisholm A, Williams S, Richmond K. Isocaloric substitution of plant sterol-enriched fat spread for carbohydrate-rich foods in a low-fat, fibre-rich diet decreases plasma low-density lipoprotein cholesterol and increases high-density lipoprotein concentrations. <i>Nutr Metab Cardiovasc Dis.</i> 2005 Oct;15(5):337-44. PMID: 16216719	Plant sterol enriched fat substituted for CHO, both on low fat diet but compared to control, higher SFA diet.
Solà R, Godàs G, Ribalta J, Vallvé JC, Girona J, Anguera A, Ostos M, Recalde D, Salazar J, Caslake M, Martín-Luján F, Salas-Salvadó J, Masana L. Effects of soluble fiber (Plantago ovata husk) on plasma lipids, lipoproteins, and apolipoproteins in men with ischemic heart disease. <i>Am J Clin Nutr.</i> 2007 Apr; 85(4): 1, 157-1, 163. PMID: 17413119.	Fiber intervention trial.
Spiteller G. The relation of lipid peroxidation processes with atherogenesis: a new theory on atherogenesis. <i>Mol Nutr Food Res.</i> 2005 Nov; 49(11): 999-1, 013. Review. PMID: 16270286.	Narrative review. Theory that cholesterol-n-3PUFA esters are atherogenic and it is furan fatty acids that are protective in fish oils.
St-Onge MP, Aban I, Bosarge A, Gower B, Hecker KD, Allison DB. Snack chips fried in corn oil alleviate cardiovascular disease risk factors when substituted for low-fat or high-fat snacks. <i>Am J Clin Nutr.</i> 2007 Jun; 85(6): 1, 503-1, 510. PMID: 17556685.	The test diet was low in both saturated and TFAs and high in PUFAs; the effects of each were not determined.
St-Onge MP, Zhang S, Darnell B, Allison DB. Baseline serum C-reactive protein is associated with lipid responses to low-fat and high-polyunsaturated fat diets. <i>J Nutr.</i> 2009 Apr; 139(4): 680-683. PMID: 19297430.	Does not address question. Report on CRP and diet interactions to affect changes in LDL-C.

<p>Stoernell CK, Tangney CC, Rockway SW. <u>Short-term changes in lipoprotein subclasses and C-reactive protein levels of hypertriglyceridemic adults on low-carbohydrate and low-fat diets.</u> <i>Nutr Res.</i> 2008 Jul; 28(7): 443-449. PMID: 19083444.</p>	<p>Low-CHO vs. low-fat issue.</p>
<p>Tapsell LC, Gillen LJ, Patch CS, Batterham M, Owen A, Baré M, Kennedy M. <u>Including walnuts in a low-fat/modified-fat diet improves HDL cholesterol-to-total cholesterol ratios in patients with type 2 diabetes.</u> <i>Diabetes Care.</i> 2004 Dec; 27(12): 2, 777-2, 783. PMID: 15562184.</p>	<p>More appropriate for Question 2.4 on PUFAs.</p>
<p>Theuwissen E, Mensink RP. <u>Water-soluble dietary fibers and cardiovascular disease.</u> <i>Physiol Behav.</i> 2008 May 23; 94(2): 285-292. Epub 2008 Jan 5. Review. PMID: 18302966.</p>	<p>Narrative review on dietary fiber.</p>
<p>Thijssen MA, Mensink RP. <u>Fatty acids and atherosclerotic risk.</u> <i>Handb Exp Pharmacol.</i> 2005; (170): 165-194. Review. PMID: 16596799.</p>	<p>Narrative review.</p>
<p>Tholstrup T, Samman S. <u>Postprandial lipoprotein(a) is affected differently by specific individual dietary fatty acids in healthy young men.</u> <i>J Nutr.</i> 2004 Oct; 134(10): 2, 550-2, 555. PMID: 15465746.</p>	<p>Does not address the question. Health outcome measure was lipoprotein(a) [Lp(a)].</p>
<p>Thompson JL, Allen P, Helitzer DL, Qualls C, Whyte AN, Wolfe VK, Herman CJ. <u>Reducing diabetes risk in American Indian women.</u> <i>Am J Prev Med.</i> 2008 Mar; 34(3): 192-201. PMID: 18312806.</p>	<p>Behavioral study in American Indian women with T2D.</p>
<p>Tonstad S, Sundfør T, Seljeflot I. <u>Effect of lifestyle changes on atherogenic lipids and endothelial cell adhesion molecules in young adults with familial premature coronary heart disease.</u> <i>Am J Cardiol.</i> 2005 May 15; 95(10): 1, 187-1, 191. PMID: 15877991.</p>	<p>Subjects with familial premature CHD not on inclusion list.</p>
<p>Upritchard JE, Zeelenberg MJ, Huizinga H, Verschuren PM, Trautwein EA. <u>Modern fat technology: What is the potential for heart health?</u> <i>Proc Nutr Soc.</i> 2005 Aug; 64(3): 379-386. Review. PMID: 16048672.</p>	<p>Functional foods paper.</p>
<p>Van Horn L, Obarzanek E, Friedman LA, Gernhofer N, Barton B. <u>Children's adaptations to a fat-reduced diet: The Dietary Intervention Study in Children (DISC).</u> <i>Pediatrics.</i> 2005 Jun; 115(6): 1, 723-1, 733. PMID: 15930237.</p>	<p>An ancillary study from DISC. Behavioral study on childrens' food choices from "go" and "whoa" food groups.</p>

<p>Viikari J, Niinikoski H, Raitakari OT, Simell O. The initiatives and outcomes for cardiovascular risks that can be achieved through paediatric counselling. <i>Curr Opin Lipidol.</i> 2009 Feb; 20(1): 17-23. Review. PMID: 19106707.</p>	<p>Behavioral study on pediatric counselling.</p>
<p>Volek JS, Phinney SD, Forsythe CE, Quann EE, Wood RJ, Puglisi MJ, Kraemer WJ, Bibus DM, Fernandez ML, Feinman RD. Carbohydrate restriction has a more favorable impact on the metabolic syndrome than a low fat diet. <i>Lipids.</i> 2009 Apr; 44(4): 297-309. PMID: 19082851.</p>	<p>Low-CHO diet paper.</p>
<p>Willett WC. Trans fatty acids and cardiovascular disease-epidemiological data. <i>Atheroscler Suppl.</i> 2006 May; 7(2): 5-8. Epub 2006 May 19. Review. PMID: 16713753.</p>	<p>More appropriate for Question 3.5 on TFAs.</p>
<p>Williams PT, Blanche PJ, Rawlings R, Krauss RM. Concordant lipoprotein and weight responses to dietary fat change in identical twins with divergent exercise levels 1. <i>Am J Clin Nutr.</i> 2005 Jul; 82(1): 181-187. PMID: 16002817.</p>	<p>Subjects not on inclusion list; identical twins with divergent exercise levels.</p>
<p>Zern TL, Fernandez ML. Cardioprotective effects of dietary polyphenols. <i>J Nutr.</i> 2005 Oct; 135(10): 2, 291-2, 294. Review. PMID: 16177184.</p>	<p>Narrative review.</p>
<p>Related to Type 2 Diabetes</p>	
<p>Schulze MB, Hu FB. Primary prevention of diabetes: what can be done and how much can be prevented? <i>Annu Rev Public Health.</i> 2005; 26: 445-467. Review. PMID: 15760297.</p>	<p>Narrative review; broad dietary coverage, includes SFA.</p>
<p>Segal-Isaacson CJ, Carello E, Wylie-Rosett J. Dietary fats and diabetes mellitus: Is there a good fat? <i>Curr Diab Rep.</i> 2001 Oct; 1(2): 161-169. Review.</p>	<p>Narrative review.</p>
<p>Summers LK, Fielding BA, Bradshaw HA, Ilic V, Beysen C, Clark ML, Moore NR, Frayn KN. Substituting dietary saturated fat with polyunsaturated fat changes abdominal fat distribution and improves insulin sensitivity. <i>Diabetologia.</i> 2002 Mar; 45(3): 369-377. PMID: 11914742.</p>	<p>N less than 10 per group.</p>
<p>Thomsen C, Storm H, Holst JJ, Hermansen K. Differential effects of saturated and monounsaturated fats on postprandial lipemia and glucagon-like peptide 1 responses in patients with type 2 diabetes. <i>Am J Clin Nutr.</i> 2003 Mar; 77(3): 605-611. PMID:</p>	<p>Postprandial response; measured glucagon like peptide (GLP-1) and gastric inhibitory polypeptides (GIP) after a meal.</p>

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Vessby B. Dietary fat and insulin action in humans. <i>Br J Nutr.</i> 2000 Mar; 83 Suppl 1: S91-S96.	Narrative review.
Yost TJ, Erskine JM, Gregg TS, Podlecki DL, Brass EP, Eckel RH. Dietary substitution of medium chain triglycerides in subjects with non-insulin-dependent diabetes mellitus in an ambulatory setting: Impact on glycemic control and insulin-mediated glucose metabolism. <i>J Am Coll Nutr.</i> 1994 Dec; 13(6): 615-622. PMID: 7706596.	Date of publication prior to 2000.